

MEASURING THE CAPACITY FOR COGNITIVE AND AFFECTIVE EMPATHY IN  
PSYCHOPATHY AND NARCISSISM

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## ABSTRACT

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Psychopathic and narcissistic display a multitude of negative interpersonal behaviors with psychopathy also displaying a greater degree of impulsive and antisocial traits (McCord & McCord, 1956; Emmons, 1984). A primary shared affective deficiency between these two disorders is lack of empathy for others (Harpur, Hakstian, & Hare, 1988; APA, 2000). The experience of empathy is a complex process, often initiated by recognition of facial emotional expressions (Carr, Iacoboni, Dubeau, Mazziotta, & Lenzi, 2003). To detect the attributes of psychopathic and narcissistic personalities that relate to lack of empathy this study examines the correlations between the ability to identify facial expressions (an objective, cognitive measure of empathy) and psychopathic and narcissistic traits (identified using self-report measures). Notably, only facets of psychopathy were significant and they varied by gender. Neither the NPI total scores, nor any of the NPI factors, displayed significant correlations to emotion recognition scores. This study's findings suggest that impairment in identifying emotional expression is differentially related to men and women to low fear/anxiety and social dominance traits characteristic of psychopathy, but not narcissism which suggest further research on

various interventions dependent on gender to reduce socially unacceptable behavior related to lack of empathy.

## INTRODUCTION

Psychopathic and narcissistic individuals are selfish and callous. They can be charming manipulative, glib, and grandiose (Emmons, 1984; McCord & McCord, 1956). While psychopathy and narcissism have similar maladaptive personality traits, psychopathy is considered more pathological due to its relation to impulsive, reckless, and often criminal behavior (Cleckley, 1941; Raskin & Terry, 1988). Due to their personality similarities, earlier theorists have suggested that narcissism and psychopathy may lie on a dimension (e.g., Kernberg, 1989). For example, in a recent conceptualization of the dimension, Skeem, Poythress, Edens, Lilienfeld, and Cale (2003) link heritable psychopathic traits (such as glib, manipulative, grandiose characteristics) to similar traits that are common in narcissism, but may be more environmentally influenced (such as receiving praise for being glib and grandiose). Notably, one of the main shared affective deficiencies between these two disorders is lack of empathy for others (Harpur, Hakstian, & Hare, 1988; Watson, Grisham, Trotter, & Biderman, 1984). However, it is unclear whether there are differences in the levels of empathy deficits between the two syndromes.

The experience of empathy is a complex process initiated by recognition of facial emotional expressions (Carr, Iacoboni, Dubeau, Mazziotta, & Lenzi, 2003). Therefore, it is possible that by examining the ability to recognize facial emotion between narcissism and psychopathy, neurobiological variables that differentiate narcissism may be identified, and variations in the syndromes may be pinpointed and could lead to treatment avenues for psychopathy, which remains treatment refractory. This study seeks to



determine if psychopathic and narcissistic personality traits have differential relationships to recognition of facial emotional expressions. Results from this study could stimulate further study of the interpersonal difficulties associated with psychopathy and narcissism, as well as development of training in coping skills for these individuals to facilitate improved interpersonal functioning.

## **Psychopathy.**

### **Definition and measures**

Early descriptions of psychopathy by Karpman (1929) and McCord and McCord (1956) identified guiltlessness in psychopaths as a distinctive trait from other criminals, along with marked aggression and impulsive tendencies. One of the most influential descriptions of the syndrome was by Cleckley (1941) in his classic text, *The Mask of Sanity*. Cleckley relied on case studies of hospital inpatients and focused on the difficulty that these individuals had maintaining stability in their lives, often acting out impulsively but demonstrating “sanity” when it served them best. Psychopaths were also described as having difficulty learning from the consequences of their behavior, possessing a selfish disposition, and demonstrating a pervasive lack of concern for others (Cleckley, 1941). The rich descriptions provided by early clinicians like Cleckley spawned significant research, including the development of methods for its evaluation. The most prominent example of these measures is the Psychopathy Checklist-Revised (PCL-R; Hare, 1991).

### **The PCL-R and factors**

Based on Cleckley’s description, Hare created the PCL-R (Hare, 1991) which itemized criteria for the identification of psychopathy within prison populations. The PCL-R contains 20 items which assess specific interpersonal constructs, including

“Glibness/Superficial Charm” as well as measurements of affect such as “Lack of Remorse or Guilt.” Finally, there are items addressing irresponsible and impulsive behaviors including “Need for Stimulation/Proneness to Boredom.” The PCL-R requires access to an individual’s arrest or prison records, and a lengthy interview process.

The PCL-R has been found to be reliable and valid for both prison and forensic psychiatric samples (Hare et al., 1990). Initial factor analyses of the measure suggested a two-factor solution which was cross-validated across numerous samples (Hart & Hare, 1989; Harpur, Hare, & Hakstian, 1989). The first factor, called Factor 1 (F1), represented the interpersonal/affective traits while Factor 2 (F2) captured impulsive/antisocial traits (Harpur et al., 1988; Harpur et al., 1989). The development of the PCL-R has substantially moved the field forward but there are some inherent disadvantages to this measure. Among the main drawbacks is that it is time consuming, costly to administer, and may not be applicable to non-institutionalized samples (Uzieblo, Verschuere, & Crombez, 2007). Therefore, other methods for identifying psychopathy have been developed.

### **Self-report measures**

To reduce the time and resources necessary to assess psychopathic traits with the PCL-R, some researchers created self-report measures of psychopathy such as the Self-Report Psychopathy Scale-II (SRP-II; Hare, Harpur, & Hemphill, 1989) and Levenson’s Self-Report Psychopathy Scale (LSRP; Levenson, Kiehl, & Fitzpatrick, 1995). The SRP-II contains 60 items and was designed to replicate the factor structure of the PCL-R. Early studies showed that the SRP-II had a positive correlation with PCL-R total scores in a sample of incarcerated males ( $r = .54$ ; Hare, 1991). For its part, the LSRP is a 26-

item scale designed for use in college samples also based on the PCL-R, except its factors are labeled primary and secondary psychopathy. On the LSRP primary psychopathy captures selfish, uncaring and manipulative traits, and secondary psychopathy encompasses impulsive, self-defeating, socially deviant and antisocial traits (Levenson et al., 1995). However, the SRP-II and the LSRP may not be assessing the same factors as the PCL-R. A study comparing several self-report psychopathy measures concluded that the SRP-II Factor 1 had a low congruence coefficient and is less reliable and replicable than Factor 2 of the SRP-II (Benning, Patrick, Salekin, & Leistico, 2005). Likewise, the LSRP and the PCL-R have demonstrated poor to fair diagnostic concordance in both Caucasian and African-American prison samples, suggesting that the LSRP and the PCL-R may not measure the same constructs (Brinkley, Schmitt, Smith, & Newman, 2001).

### **The PPI and factors**

Given the aforementioned criticisms of some of the self-report measures of psychopathy derived from the PCL-R, there have been recent calls to develop measures that focus on the traditional interpersonal/affective traits by Cleckley, McCord, and others (Lilienfeld & Andrews, 1996). One such measure is the Psychopathy Personality Inventory (PPI; Lilienfeld & Andrews, 1996) which was conceptualized to be a relatively "pure" measure of the personality-based construct of psychopathy. To achieve a "pure" measure, the authors of the PPI employed an exploratory approach to test construction by which the items and constructs were refined and influenced each other, rather than solely following previous conceptualizations of psychopathy (Lilienfeld & Andrews, 1996, p. 490). This approach followed several rounds of item writing, factor analysis, and

rewriting (Lilienfeld & Andrews, 1996). In the final round of factor analysis, eight distinct subscales were identified (sample items quoted):

- Machiavellian Egocentricity – “I always look out for my own interests before worrying about those of the other guy.” (True)
- Social Potency – “Even when others are upset with me, I can usually win them over with my charm.” (True)
- Coldheartedness – “I have had ‘crushes’ on people that were so intense that they were painful.” (False)
- Carefree Nonplanfulness – “I often make the same errors in judgment over and over again.” (True)
- Fearlessness – “Making a parachute jump would really frighten me.” (False)
- Blame Externalization – “I usually feel that people give me the credit I deserve.” (False)
- Impulse Nonconformity – “I sometimes question authority figures ‘just for the hell of it’.” (True)
- Stress Immunity – “I can remain calm in situations that would make many other people panic.” (True)

During validation, the PPI demonstrated high internal consistency coefficients as a whole in several validation samples (internal consistency coefficients ranging from .83 to .93), and between its subscales (ranging from .70 to .91; Lilienfeld & Andrews, 1996). Subsequently, a short form of the PPI containing 56 items was developed (PPI-SF; Lilienfeld & Hess, 2001). A factor analysis by Wilson, Frick, and Clements (1999) of a sample of college students identified two factors somewhat similar (but not isometric) to

those found in the forensic samples with the PCL-R. The first was a cold, and unemotional interpersonal style (PPI-I) composed by Social Potency, Coldheartedness, Fearlessness, Impulsive Nonconformity, and Stress Immunity. The second dimension was characterized by items detailing an impulsive and antisocial attitude (PPI-II) comprised of Machiavellian Egocentricity, Blame Externalization and Carefree Nonplanfulness. It is important to note that Wilson et al. (1999) identified Machiavellian Egocentricity, which is a measure of manipulative narcissism, as loading on the impulsive antisocial component instead of the callous unemotional factor as predicted. In explaining these findings, Wilson et al. (1999) cited that Machiavellian Egocentricity, which taps maladaptive aspects of narcissism like exploitiveness and entitlement, is often associated with antisocial lifestyle in non-institutionalized adult samples (Wilson et al., 1999, p.232). Thus, some narcissistic traits may underlie impulsive, antisocial attitudes.

Additional factor analytic studies of the full version of the PPI have revealed a three factor structure, separating Social Potency, Stress Immunity, Impulsive Nonconformity and Fearlessness into a “Fearless Dominance” factor (PPI-I), and Machiavellian Egocentricity, Blame Externalization, and Carefree Nonplanfulness into an “Impulsive Antisociality” factor (PPI-II), while Coldheartedness stood alone (Benning, Patrick, Blonigen, Hicks, & Iacono, 2005; Benning, Patrick, Salekin, & Leistico, 2005). A latter confirmatory factor analysis study by Neumann, Malterer, and Newman (2008) using the full version of the PPI identified three factors. The first of these joins Impulsive Nonconformity, Blame Externalization, Machiavellian Egocentricity, and Fearlessness onto a “fearless impulsive antisociality” factor. A second high extroversion/low neuroticism factor consists of Stress Immunity and Social Potency. Finally, Carefree

Nonplanfulness, and Coldheartedness constitute a “callous-indifferent” factor. It should be noted that in addition to varying factors among male samples, other studies have indicated PPI factor structure variance across genders (e.g., Anestis, Caron & Carbonell, 2011) and therefore, some researchers have proposed that examining the individual scales might be more informative (Miller & Lynam, 2012).

### **Narcissism.**

#### **Definition – DSM-IV-TR**

The term narcissism originates from the Greek myth of Narcissus. After Narcissus denies many admirers, including the nymph Echo, Nemesis (the goddess of vengeance) curses Narcissus to become entranced with his own reflection in a pool of water. Variations of the myth depict Narcissus dying of sorrow, suicide, and then being transformed into a flower (Bergmann, 1984). In clinical settings, Ellis and Freud were among the first to utilize the term narcissism (e.g. Ellis, 1898; Freud, 1914/1953), and hypothesized that it originated in auto-erotism, such that the individual sought pleasure from themselves and never learned to find it from interaction with others. Later, Kernberg (1976) and Kohut (1976) theorized that narcissism originates from parental rejection or abandonment. Both of these theories state that the child then withdraws as a defense mechanism and turns to him/herself for trust and love, although they differ in how narcissism further develops. In addition, although the primary facet of narcissism is self-adoration, there are also theories that it is caused by a deficiency in self-value which is sought to be fulfilled by affirmation and affection from others (Emmons, 1987).

Today, narcissistic personality disorder (NPD) is one of the four Cluster B (“erratic-dramatic”) personality disorders and it is described as “a pervasive pattern of

grandiosity, need for admiration, and lack of empathy” (APA, 2000, p.714). Currently, in the research literature, one of the most used measures of narcissism is the Narcissistic Personality Inventory (NPI; Raskin & Hall, 1979). Although the NPI is not a clinical measure, it was originally based on the DSM-III criteria for NPD, to measure narcissism as a normal personality trait (Raskin & Hall 1981).

### **Factors of the Narcissistic Personality Inventory**

Factor analytic studies suggest that the NPI can be divided into either four or seven factor models (Emmons, 1984; Raskin & Terry, 1988). Emmons’s (1984) four factor model includes (sample items quoted):

- Exploiteness/Entitlement – “I will never be satisfied until I get all that I deserve.”
- Leadership/Authority – “I would prefer to be a leader.”
- Superiority/Arrogance – “I can make anybody believe anything.”
- Self-absorption/Self-admiration – “I like to look at my body.”

Although other studies of the NPI have arrived at a higher number of factors (e.g., Authority, Self-Sufficiency, Superiority, Exhibitionism, Exploiteness, Vanity, and Entitlement; Raskin & Terry, 1988) there is some convergence of opinion that the aforementioned four factors tend to have higher reliability (cf., Vazire, Naumann, Rentfrow, & Gosling, 2008) and they adequately capture the feelings of entitlement, exploitiveness and uniqueness most related to maladaptive psychological functioning (e.g., Dickinson & Pincus, 2003; Hill & Lapsley, 2011). Notably, a deficiency in empathy at either a perceptual or an emotional level may be a contributing factor for narcissism’s

exploitiveness, as well as in the interpersonal/affective factor of psychopathy (Paulhus & Williams, 2002).

### **Psychopathy, Narcissism and Empathy.**

#### **Variations in empathy**

Empathy is conceptualized as cognitive and affective. Cognitive empathy has been defined as the ability to determine the emotional states of others without directly experiencing the emotion. On the other hand, affective empathy has been defined as feeling an appropriate emotional reaction in response to others' emotions (Feshbach, 1978). Early efforts at measuring empathy resulted in measures like the Mehrabian-Epstein Empathy Scale (MEES; Mehrabian & Epstein, 1972), a 33 item measure with seven subscales. The MEES was designed to measure empathic emotional responses defined as the recognition and sharing of others' feelings. The subscales include Susceptibility to Emotional Contagion, Appreciation of the Feelings of Unfamiliar and Distant Others, Extreme Emotional Responsiveness, Tendency to be Moved by Others' Positive Emotional Experiences, Tendency to be Moved by Others' Negative Emotional Experiences, Sympathetic Tendency, and Willingness to be in Contact with Others Who Have Problems (Mehrabian & Epstein, 1972, p.527).

Studies have paired the MEES with tasks identifying emotional faces in order to examine the connection between recognition of other's feelings with emotional empathy. One such study by Mayer, DiPaolo, and Salovey (1990) reported that scores from the MEES were positively correlated with accuracy scores in a visual emotion identification task. These results indicate an association between the ability to perceive emotional content in visual stimuli, and the ability to respond empathically to others (Mayer et al.,



1990). However, many measures of empathy like the MEES with significantly intercorrelated subscales (all exceeding 0.30; Mehrabian & Epstein, 1972, p.527) do not differentiate between cognitive and affective empathy. In response, other measures have been developed to capture empathy facets. One such measure is the Interpersonal Reactivity Index (IRI; Davis, 1980), a 28-item self-report measure with four distinct subscales. The subscales include Perspective Taking and Fantasy which measure the tendency to psychologically adopt the view of others (similar to cognitive empathy), and Empathic Concern and Personal Distress which measure the emotional reactions of the respondents (similar to affective empathy; Davis, 1983). Given the subfacets of empathy, it appears that understanding the affective and cognitive experience of emotions in psychopathy and narcissism are necessary to gain a more complete picture of their interpersonal difficulties.

### **Psychopathy and measures of empathy**

Systematic investigations of the relationship between empathy and psychopathy have been conducted for over two decades. In 1994, Zágón and Jackson found significant negative correlations between the SRP-II (self-report measure of psychopathy based on the PCL-R), and the IRI Personal Distress subscale, which assess a person's own feeling of uneasiness in reaction to the emotions of others. Among males and females, the F1 (interpersonal/affective traits) factor showed large negative correlations with IRI Personal Distress scale ( $r = -.41; -.51$ ). Notably, the F2 (impulsive/antisocial) factor also displayed a moderate negative correlation with IRI Personal Distress but only among females ( $r = -.36$ ). These findings could mean that females with overall higher psychopathic traits may have a greater disruption in their personal emotional reactions to

others. On the other hand, only males who have more interpersonal/affective psychopathic traits show a similar disruption (Zágon & Jackson, 1994).

Another study employing the California Psychological Inventory (CPI; Gough, 1987) and the Psychopathy Q-sort (Reise & Oliver, 1994) revealed small *positive* correlations between psychopathy and the empathy scale of the CPI for both genders (males,  $r = .17$ ,  $p = .05$ ; females,  $r = .22$ ,  $p = .001$ ; Reise & Wink, 1995). These findings are counterintuitive because the traditional conceptualization of psychopathy depicts psychopaths as unfeeling and having difficulties empathizing with others. However, one explanation may be that in the CPI, empathy is defined as “the level of understanding of others” (Gough, 1987) which is consistent with the concept of cognitive empathy, and not that of affective empathy. These findings may mean that individuals with psychopathic traits possibly have well developed *cognitive* empathy skills but deficient affective empathy for others.

In a later study, the PPI and the MEES were administered to a correctional sample. The MEES total score was negatively correlated with the total score of the PPI ( $r = -.45$ ), as well as the Coldheartedness ( $r = -.52$ ) and Machiavellian Egocentricity subscales ( $r = -.40$ ; Sandoval, Hancock, Poythress, Edens, & Lilienfeld, 2000). Another study with a noncriminal sample employing the PPI and the IRI showed a *positive* correlation between the total PPI score and IRI, but a negative correlation between Coldheartedness and the IRI total scores ( $r = -.21$ ,  $p < 0.001$ ; Wotil, 2010). These results may indicate that there are specific facets of psychopathic personality, rather than the full constellation of traits, that more strongly relate to deficiencies in empathy.

In summary, previous research indicates that individuals with psychopathic traits may be able to cognitively understand the emotions of others, even if they do not personally feel them. Difficulty feeling emotions seems to be especially apparent when associated with Coldheartedness and Machiavellian Egocentricity. These facets of psychopathy are similar (respectively) to lack of empathy characteristic of narcissistic personality disorder (APA, 2000) and of Exploiteness/Entitlement, a facet of narcissism on the NPI.

### **Narcissism and measures of empathy**

Studies examining the NPI and measures of empathy report more variations in the results than those with psychopathy. A study by Watson, Grisham, Trotter, and Biderman (1984) employed multiple scales of empathy, including the MEES, the Smith Empathic Personality Questionnaire (SEPQ, designed to measure the affect that an individual experiences along with another person; Watson et al., 1984) and the Hogan Empathy Scale (HES, developed to measure cognitive empathy; Hogan, 1969). Results indicated that the MEES had small to medium negative correlations with Exploiteness/Entitlement and Superiority/Arrogance. Similarly, the SEPQ had medium negative correlations with Exploiteness/Entitlement and Leadership/Authority and small to medium negative correlations with Superiority/Arrogance and Self-Absorption/Self-Admiration. The HES had small to medium negative correlations with Exploiteness/Entitlement but positive correlations with Leadership/Authority (medium) and Self-Absorption/Self-Admiration (small). Across these measures, the most striking finding is the consistent, strong, negative correlation of Exploiteness/Entitlement with the multiple measures of cognitive and affective empathy. On the other hand, the *positive*

correlations between Leadership/Authority and Self-Absorption/Self-Admiration with the HES, and negative correlations with the SEPQ may indicate an increased correlation between some aspects of personality measured by the NPI and the ability to intellectually *understand* others' emotions, but still lack an ability to *feel* those emotions themselves.

Another study with a criminal population computed both zero order, as well as partial correlations, between the IRI and the NPI's Exploiteness/Entitlement, controlling for the other three NPI factors and vice versa (Watson, Little, Sawrie, & Biderman, 1992). The Exploiteness/Entitlement factor displayed significant partial and zero order negative correlations with empathic concern and perspective taking. The only positive partial correlation for Exploiteness/Entitlement was with personal distress ( $r = .21, p < .001$ ), a measure of the individuals' unease in anxiety-provoking interpersonal settings (e.g. I tend to lose control during emergencies), rather than their affective empathy for others (Davis, 1983). These results again highlight the maladaptive nature of the Exploiteness/Entitlement factor because elevations in this factor indicated a possible indifference to, and discomfort with, others' feelings. On the other hand, the Leadership/Authority factor displayed negative partial and zero order correlations with personal distress, but *positive* partial correlations with empathic concern and perspective taking. In addition, Superiority/Arrogance had negative zero order correlations with empathic concern ( $r = -.14, p < .01$ ), personal distress ( $r = -.29, p < .001$ ) and a negative partial correlation with personal distress ( $r = -.33, p < .001$ ). Self-Absorption/Self-Admiration had negative correlations with empathic concern ( $r = -.13, p < .05$  zero order) and personal distress ( $r = -.11, p < .05$  partial, Watson et al., 1992). Thus, although most of the four factors from the NPI correlate negatively with empathy scales, the strongest

correlations are found to be negative with the Exploiteness/Entitlement factor. There were mixed results from the Leadership/Authority factor, such that in some ways, elevations in this factor coincide with narcissistic individuals being able to take the perspective of others, but the individuals do not experience the emotions of the other.

A similar study compared the construct of narcissism with measures of empathy and emotional intelligence defined as “appraisal and expression, regulation, and utilization of emotion” (Vonk, Zeigler-Hill, Mayhew, & Mercer, 2013, p. 398). These authors found Leadership/Authority to be negatively correlated with empathic concern and positively with emotional intelligence. This suggests that individuals who are high in Leadership/Authority also have an increased ability to cognitively comprehend emotion in social situations, such as appraisal and expression of emotion; however, they may not actually experience the emotions when observing others (i.e., high cognitive empathy, low affective empathy). Meanwhile, Exploiteness/Entitlement was negatively correlated with both emotional intelligence and empathic concern. Thus, in contrast to individuals high in Leadership/Authority, individuals who are high in Exploiteness/Entitlement display deficiencies in both affective and cognitive empathy. However, these results were still based on self-report measures and may be influenced by high impression management found in narcissistic (and psychopathic) individuals. Thus, studies that use more objective measures of emotional recognition may shed light onto the processes that underlie empathy deficits in psychopathic and narcissistic individuals.

**Recognition of Emotional Stimuli.**

As an alternative to self-report measures, some studies have measured empathy through behavioral reactions to emotional stimuli. An early study by Hare, Williamson,

and Harpur (1988) used a lexical decision task in which participants were instructed to identify if a stimulus presented for a brief period of time was a real word and if so, rate it as positive, negative, or neutral. Results showed that criminals with higher psychopathic traits (determined by the scores on the PCL) showed smaller event-related brain potentials (ERP, an electrophysiological response to a stimulus) than non-psychopathic criminals. The lower ERP in psychopathic criminals compared to the ERP of non-psychopathic criminals may indicate that emotionally charged words have different or no meaning for individuals with more psychopathic traits (Hare et al., 1988). However, the two groups showed no difference in accuracy when rating the valence of the word for the lexical decision task, supporting the assertion that psychopathic individuals “know the words but not the music” of emotion (Johns & Quay, 1962, p. 217).

Startle response has also been a method of measuring individual’s emotional responses. In Patrick, Bradley and Lang’s (1993) study, participants were presented with neutral, unpleasant, and pleasant affective images and then startled by a sudden burst of white noise. The control’s results revealed a significant linear relationship with the largest startle responses during unpleasant picture slides (e.g., mutilations, aimed guns) and the smallest during pleasant slides (e.g., food, children). However, individuals with psychopathic traits did not display increased startle reactivity when white noise was paired with unpleasant images, especially for those with elevated affective features of psychopathy (Patrick et al., 1993). A later extension of this study also indicated that psychopaths display greater startle blink inhibition across pleasant images compared to nonpsychopaths (Levenston, Patrick, Bradley, & Lang, 2000). Based on these findings, Levenston et al. (2000) suggested that psychopaths have a heightened aversion threshold,

meaning that psychopaths do not respond as strongly or readily to stimuli. Such results underscore previous findings suggesting deficiencies in the ability of psychopaths to react emotionally to affective stimuli.

As summarized above, empathetic responses appear to be multifaceted, composed of cognitive and affective elements. However, there are to date, no known studies of the impact of narcissistic traits in relation to behavioral reactions to emotional stimuli. Beyond objective measures of neurological and behavioral reactions there are higher order processes that combine to influence the executive functioning necessary for empathy, such as emotional facial recognition.

### **Deficiencies in emotion recognition-facial cues**

In relation to recognition of emotions and empathy, researchers have identified a conceptual encoding of emotion (involving cortical processes; Hofelich & Preston, 2012). The relationships between conceptual encoding, trait empathy, and attention were tested through self-report measures and a task that required participants to identify the valence of adjectives (e.g., whether the word *blissful* had happy, angry, or sad valence) paired with various types of emotional faces displayed behind a word. In this study some faces were congruent to the word in valence (e.g., a happy expression with the word *blissful*), others were contradictory. Results revealed that high trait empathy related to accuracy in identifying the emotional valence word, especially when congruent with the accompanying facial expression (Hofelich & Preston, 2012). By employing facial expression as the stimulus to measure emotional response, research may clarify how psychopathy and narcissism traits relate to the perception of cognitive empathy.

Previous research has utilized emotional facial expressions and identification tasks to assess the empathic abilities of individuals with psychopathic traits. Subjects are generally shown happy, surprised, disgusted, angry, sad and fearful facial expressions on slides. Initial studies found that psychopathic individuals demonstrated difficulty interpreting disgust (Kosson, Suchy, Mayer, & Libby, 2002). In a later study, with computer generated faces that developed stronger emotional displays over time, results indicated that individuals with psychopathic traits exhibited deficits identifying fear (Blair et al., 2004).

With regard to narcissism, researchers have tested participants' ability to label happy and disgusted faces as displaying positive or negative affect. Results of one study showed that there were no differences between narcissistic and non-narcissistic individuals in ability to identify these expressions (Kuang, 2009). However, in this study, participants only had to identify the emotion as negative or positive, which may not be sufficient to discriminate between narcissistic and non-narcissistic individuals due to the simplicity of identifying emotions in a broad, binary way (Kuang, 2009).

In another study, employing self-report and facial expression tasks, Wai and Tiliopoulos (2012) hypothesized that individuals who displayed elevated narcissism and psychopathy traits would display more deficits in affective empathy (i.e., *feeling* the emotions witnessed) with no impairment in cognitive empathy (i.e., identifying others' emotions). In this study, primary psychopathy (characterized by a manipulative and exploitative interaction style and measured by a factor of the LSRP) was negatively correlated with affective empathy ( $r = -.52$ ) and had no significant relationship to cognitive empathy. Narcissism was negatively correlated with affective empathy to a



lesser degree ( $r = -.21$ ) but *positively* correlated with cognitive empathy ( $r = .18$ ; Wai & Tiliopoulos, 2012). Therefore, narcissism's affective empathy deficit appears to be lower than that associated with psychopathy and those who demonstrate elevated narcissistic traits may be better able to *intellectually* understand others' feelings. A limitation of this study is that data were not examined on a facet level of psychopathy or factor level of narcissism, thus the specific traits found in psychopathy and narcissism that relate to empathic deficiencies could not be identified.

In summary, studies suggest that individuals with psychopathic traits tend to have an increased difficulty identifying and understanding the emotions of others. Meanwhile, for individuals with narcissistic traits, some studies indicate improved identification of emotions but deficiency of interpreting emotions in others.

### **Statement of the Problem.**

Psychopathy and narcissism are characterized by a lack of empathy for others. Psychopathy has been positively correlated with narcissistic personality features and those with elevated narcissistic traits are self-centered and unable to understand how their actions affect others (Emmons, 1987; Hart & Hare, 1989).

To date, no studies have simultaneously examined the relationship between psychopathic personality traits at a *facet level* and narcissistic personality traits at a factor level using objective cognitive measures of empathy, specifically the ability to perceive and appropriately interpret emotional expressions. Examining facet level correlations reveal more distinct similarities and differences between psychopathic and narcissistic personality traits. The goal of this study was to further examine the attributes of psychopathic and narcissistic personalities that primarily connect to lack of empathy.

This study utilized facial recognition to isolate cognitive empathy from affective empathy, and minimized the impact of social desirability that is common in self-report measures. This study aimed to examine the ability to identify emotional facial expressions in relation to psychopathic and narcissistic traits using images of six facial expressions, the PPI-SF, and the NPI.

Hypothesis 1: Due to reports of negative correlations of both Coldheartedness and Machiavellian Egocentricity with general measures of empathy (Sandoval et al., 2000; Wotil, 2010) we expect that individuals with high levels of Coldheartedness, and Machiavellian Egocentricity will display poorer performance on the emotion recognition task.

Hypothesis 2: Based on past studies reporting negative correlations between Exploiteness/Entitlement and empathic concern, perspective taking (Watson et al., 1992), emotional intelligence (Vonk et al., 2013), and lower scores on multiple general measures of empathy (Watson et al., 1984), we expect that individuals with higher scores of Exploiteness/Entitlement will display poorer performance on the emotion recognition task.

Hypothesis 3: Based on reports of positive correlations between Leadership/Authority and empathic concern, perspective taking (Watson et al., 1992), the Hogan Empathy Scale (Watson et al., 1984), and emotional intelligence (Vonk et al., 2013), we expect individuals with higher scores of Leadership/Authority will also display better performance on the emotion recognition task.

## METHODS

### **Participants.**

Participants were Psychology students who received course credit for their participation. The current study sample was comprised of 261 participants. Of this sample, 129 are male (49%) and 132 are female (51%) with an average age of 19.49 (SD = 2.88). The ethnic composition of the sample was predominantly European American (69% European American; 13% African American; 12% Latino; 6% Other).

### **Instruments.**

#### **Psychopathy**

Psychopathic features were measured with the Psychopathic Personality Inventory – Short Form (PPI-SF; Lilienfeld & Hess, 2001; Appendix A), a 56-item self-report measure with a 1–4 Likert-type scale. The PPI-SF correlates moderately to highly with self-report, structured interview, and peer-rated measures of psychopathy (Lilienfeld & Andrews, 1996). It was found to correlate highly with the full form ( $r = .90$ ; Lilienfeld & Hess, 2001) and also appears to have a two factor structure (Wilson et al., 1999). A total score as a measure of overall psychopathy, the two factors, along with the eight facets assessing various components of psychopathy, was evaluated. In addition, the PPI-SF as a whole achieved a cronbach's alpha of .78, the PPI-I achieved a .83, and the PPI-II achieved a .81, which are all acceptable reliability.

#### **Narcissism**

Narcissistic features were assessed with the Narcissistic Personality Inventory (NPI; Raskin & Hall, 1979; Raskin & Terry, 1988; Appendix B). It is a 40-item, forced-

choice self-report measure that was originally developed and validated in non-clinical settings. Originally, the NPI (Raskin & Hall, 1979) was developed using the DSM-III criteria for Narcissistic Personality Disorder. The total score of the items has demonstrated strong internal consistency in prior non-referred studies (e.g.,  $\alpha = .83$ ; Raskin & Terry, 1988). The scores were examined in a four factor model including Exploiteness/Entitlement, Leadership/Authority, Superiority/Arrogance, and Self-absorption/Self-admiration (Emmons, 1984). The NPI total score achieved a cronbach's alpha of .83, Exploiteness/Entitlement a .53, Leadership/Authority a .77, Superiority/Arrogance a .62, and Self-Absorption/Self-Admiration a .65 which are all acceptable to good with the exception of Exploiteness/Entitlement which has poor reliability.

### **Emotional Processing**

The emotional processing measure is a facial recognition task originally developed by Frigerio and colleagues (Frigerio, Burt, Montagne, Murray, & Perrett, 2002). Participants were seated in front of a computer. For this task the computer program began with an image of a neutral expression that slowly morphs (changing at a consistent rate) to 100% of a target emotion (e.g. sadness) in increments of 10% (e.g., starting out neutral and then increasing degrees of sadness over time). See Appendix C for images of the process of facial morphing (Frigerio et al., 2002). Participants are asked to identify the emotion by pressing appropriately labeled keys at regular intervals throughout the animation process and were scored based on accuracy. For this study only the scores at 100%, when the emotion was displayed to the greatest degree, were considered. The images include facial pictures of four individuals (two males and two

females). There are 6 variations of emotion including happiness, surprise, anger disgust, fear, and sadness which are presented randomly 4 times each.

### **Procedure.**

Participants were recruited through a departmental website which listed available experiments and allowed potential participants to choose experiments of interest. Upon arriving to the computer lab, all participants were asked to read a consent form and indicate whether or not they would like to participate in the experiment. Participants completed an IRB-approved research protocol in a university computer lab in small groups of 2 to 12 individuals. Participants read a consent form (Lima, 2007; Appendix D), and those agreeing to participate were seated at a computer. Participants completed the emotional processing task and all measures using a computer-based format.

Participants received course credit for their participation (Lima, 2007).

### **Analysis.**

Analysis for psychopathic traits initially followed the factor structure developed using the PPI-SF by Wilson et al. (1999), as well as examining individual scales which include Social Potency, Coldheartedness, Fearlessness, Impulsive Nonconformity, Stress Immunity, Machiavellian Egocentricity, Blame Externalization and Carefree Nonplanfulness. In addition, the NPI scores were divided into the four factors that Emmons proposed: Exploiteness/Entitlement, Leadership/Authority, Superiority/Arrogance, and Self-absorption/Self-admiration (Emmons, 1984). This four factor model has been supported by results from a study in which multiple factor proposals were considered (Corry, Merritt, Mrug, & Pamp, 2008).

The trials on the emotion recognition task received 1 point if the participant identified the correct emotion and 0 points if incorrect. The scores for the four trials of the six emotions in the face identification task have been averaged so that each subject has a percentage correct for every emotion. The sample is also divided by gender and the percentage correct was examined for correlations with the PPI-SF, the NPI, and their respective factors.

## RESULTS

### **Descriptive Statistics.**

The scores on the PPI-I and PPI-II fell within a normal distribution for both males and females. Although the distribution of scores on the NPI did not fall within a normal distribution, the skew for both males and females was within the range of negative one and one and thus still acceptable to interpret Pearson's  $r$  (males skew =  $-.07$ ; females skew =  $-.03$ ). See Table 1 for detailed information on the means and standard deviations for male and female scores on the PPI-I, PPI-II, NPI scores and corresponding factors/facets. See Table 2 for Cronbach's alpha on each PPI facet.

### **Correlations.**

The two factor structure of the PPI-SF did not produce significant correlations with any of the facial expressions in the emotion recognition task (Table 3). Examination of the eight PPI-SF scales across the entire sample showed that Social Potency factor correlated negatively with identification of fear expressions, and Carefree Nonplanfulness correlated positively with identification of angry expressions (Table 3). Examining the genders separately showed that among females, Social Potency was negatively related to fear emotion recognition, and Stress Immunity was negatively related to recognition of anger (Table 5). Also for females, Carefree Nonplanfulness was positively related to recognition of anger, and Impulse Nonconformity was positively related to disgust emotion recognition. Among males, Machiavellian Egocentricity and Fearlessness were negatively related to recognition of anger. Neither the NPI total scores, nor any of the NPI factors, displayed significant correlations to emotion recognition scores.

## DISCUSSION

Previous studies have demonstrated a lack of empathy and difficulty identifying emotional expressions, in psychopathic and narcissistic individuals. Other past studies have also indicated negative correlations between psychopathic traits and identification of fear (Blair et al., 2004). Yet other studies have demonstrated small positive correlations between psychopathy and empathy (Reise & Wink, 1995) and aspects of narcissism and empathy (e.g. Watson et al., 1992). Attempts at resolving these disparities with objective measures of empathy are growing but data remain inconclusive. For example, when testing the ability to identify valence of happy and disgust expressions, researchers found no relationship with elevations in narcissistic traits (Kuang, 2009). However, more recent research (e.g. Wai & Tiliopoulos, 2012) found that elevations in narcissistic traits do relate to ability to identify emotions in others. In an effort to help resolve some of these inconsistencies, this study examined the relationship between broad and narrow aspects of psychopathy and narcissism to objective measures of emotion recognition. In addition, the study examined the effect of gender on this relationship since gender may play a role in the manifestation of psychopathic traits (e.g., Anestis et al., 2011).

With regard to psychopathic traits, the first hypothesis stated that Coldheartedness, and Machiavellian Egocentricity would be associated with poorer emotion recognition. This hypothesis was only partially supported and only among men. First, Coldheartedness was not related to emotion recognition in the whole sample or for either gender. It should be noted that in a validity study of the PPI, Benning, Patrick, Hicks, Blonigen, and Krueger (2003, p. 347) showed that Coldheartedness was most predicted by the Absorption scale of the Multidimensional Personality Questionnaire



(MPQ; Tellegen, 2011) which largely “reflects sentimentality, imaginativeness, and emotional reactivity more so than callousness or cruelty.” Thus, the Coldheartedness scale may not be truly measuring callousness/lack of empathy and thus it did not relate to empathy in the way that was originally hypothesized. Rather, the current study revealed that among females Social Potency correlated negatively with the ability to recognize fear and Stress Immunity correlated negatively with the ability to recognize anger. On the other hand, among males, the Machiavellian Egocentricity and Fearlessness scales correlated negatively with the ability to recognize anger in others. In addition, there was an unexpected positive relationships between identifying anger and Carefree Nonplanfulness (total sample, females), and identifying disgust and Impulse Nonconformity (females). To summarize, these results indicated a decreased ability to detect distress (i.e., fear and anger) in others which is associated with elevated levels of personality traits characterized by lack of fear/anxiety (Fearlessness/Stress Immunity), social dominance (Social Potency), and manipulativeness (Machiavellian Egocentricity).

In the case of narcissistic traits, the second hypothesis stated that Exploiteness/Entitlement would be associated with poorer emotion recognition. This hypothesis was not supported. The current study found no relationship between Exploiteness/Entitlement and scores on the emotion recognition task. Moreover, the third hypothesis, that Leadership/Authority would be associated with better recognition, was also unsupported. Consistent with previous findings, the above mentioned narcissistic traits correlated to low fear/anxiety and high dominance psychopathic traits, but in this study they did not directly relate to an impaired (or bolstered ability), to interpret emotional expressions, even when considering gender differences. Thus, it is

possible that narcissistic traits and a deficiency in cognitive empathy are unrelated, or perhaps more likely, that previously observed relationships between narcissistic traits and lack of empathy might be better explained by their overlap with psychopathic traits.

## IMPLICATIONS AND FURTHER DIRECTIONS

The current study has three sets of major implications. First, there were stark gender differences in personality traits related to impairments in recognition of emotion in others. Among women these personality traits appear to be marked by lack of anxiety and social dominance while among men they appear to be related to similar, but more extreme, personality variants marked by lack of fear and egocentric manipulation of others. Second, psychopathic traits relate to the identification of emotions in a way that narcissistic traits do not. Therefore, the ability to be socially adept and to tolerate a high level of stress can both be adaptive traits to a certain degree (narcissism) but decidedly maladaptive when they cross the threshold into psychopathic traits which are connected with deficiencies in empathic functioning,

Third, and finally, the unexpected relationship for females between Carefree Nonplanfulness and identification of anger, and the relationship between Impulse Nonconformity and identification of disgust are novel. It is possible that individuals with these traits have greater experience identifying the corresponding emotions that they often elicit in others. That is, those who lack planning have become sensitized to identify anger since their actions elicit anger in others. Similarly, those who are impulsive and do not conform have been sensitized to identify expressions of disgust from others who are more rigid. However, this possibility needs to be tested in the future. Alternatively there may be third factor at play. Future studies should also focus on using multi-trait, multi-method measures of cognitive and affective empathy. This could include self-report ratings of the individual's emotions after viewing emotional facial expressions. In

addition, finding a way to incorporate body language and tone of voice among other social elements into an emotion recognition task may help better understand the emotional deficits of psychopathy. Finally, research should continue exploring the way that psychopathic traits are manifested in males and females. If an individual presents with interpersonal problems related to psychopathic traits, then gender may be an important variable to take into account in order to construct future interventions.

### **General Limitations.**

The first limitation of this study is that identifying emotional expressions may reduce the generalizations that can be made from this study to affective empathy, and perhaps only limiting it to cognitive empathy. Also, empathy may be affected by cues such as body language and tone of voice not assessed in this study. Another limitation is that the Coldheartedness facet on the PPI-SF, and the Exploiteness/Entitlement factor on the NPI both had unacceptable reliability. Of note, other researchers have found similar poor reliability in these scales and therefore future studies should consider using different measures of psychopathy and narcissism when examining the relationship of these personality constellations and emotion recognition (Benning et al., 2003).

### **Conclusions.**

Appropriate socialization for individuals includes the ability to understand others in order to relate in a socially acceptable manner. Empathy plays a fundamental role in relating to others and can be separated into cognitive and affective empathy. This study's findings suggest that impairment in identifying emotional expression is differentially related to men and women to low fear/anxiety and social dominance traits characteristic of psychopathy, but not narcissism. These findings suggest that in the future, individuals

may need different interventions dependent on their gender to reduce socially unacceptable behavior related to lack of empathy.

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## APPENDICIES

**Appendix A. Tables.**

Table 1

*Means and Standard Deviations of PPI and NPI Scores*

Scale	Males		Females	
	M	SD	M	SD
<b>PPI-I</b>	88.14	11.46	80.96	12.67
Social Potency	19.19	4.06	19.85	4.27
Coldheartedness	15.19	3.16	13.68	3.05
Fearlessness	18.51	4.92	15.36	4.90
Impulsive Nonconformity	15.21	3.61	13.88	3.72
Stress Immunity	20.12	3.82	18.19	4.53
<b>PPI-II</b>	42.95	7.78	41.84	7.73
Machiavellian Egocentricity	16.27	3.78	15.32	3.53
Blame Externalization	13.04	3.95	13.90	4.01
Carefree Nonplanfulness	13.64	3.06	12.62	3.14
<b>NPI Total</b>	18.76	7.43	18.08	5.99
Exploiteness/Entitlement	2.33	1.63	1.69	1.46
Leadership/Authority	4.47	2.35	4.83	2.29
Superiority/Arrogance	3.60	2.17	2.86	1.76
Self-absorption/Self-admiration	3.95	2.12	4.12	1.93

Table 2

*Reliability for PPI and NPI Factors and Facets*

Scale	Cronbach's Alpha
<b>PPI Total</b>	.78
<b>PPI-I</b>	.83
Social Potency	.82
Coldheartedness	.57
Fearlessness	.79
Impulsive Nonconformity	.67
Stress Immunity	.83
<b>PPI-II</b>	.81
Machiavellian Egocentricity	.74
Blame Externalization	.81
Carefree Nonplanfulness	.70
<b>NPI Total</b>	.83
Exploiteness/Entitlement	.53
Leadership/Authority	.77
Superiority/Arrogance	.62
Self-absorption/Self-admiration	.65

Table 3

*Correlations of PPI Factors/Facets and Identification of Emotional Expressions - Total*

PPI Factors/Facets	Surprise	Anger	Sad	Disgust	Fear	Happy
<b>PPI-I</b>	.03	.00	.03	.06	.02	.00
<b>PPI-II</b>	.06	.02	.02	.08	.07	.03
Social Potency	-.07	-.07	.04	-.04	-.14*	-.02
Stress Immunity	.03	-.04	.04	.00	.02	.06
Impulse Nonconformity	.10	.03	-.04	.08	.10	.02
Blame Externalization	-.01	-.03	.04	.08	.00	-.01
Coldheartedness	-.07	.09	.02	.01	.05	-.06
Fearlessness	.06	.00	.02	.10	.06	.00
Carefree Nonplanfulness	.04	.16*	.03	-.02	.11	.02
Machiavellian Egocentricity	.10	-.05	-.03	.10	.05	.06

\*p&lt;.05    \*\*p&lt;.01



Table 4

*Correlations of NPI Factors and Identification of Emotional Expressions - Total*

NPI Factor	Surprise	Anger	Sad	Disgust	Fear	Happy
Exploiteness/Entitlement	-.05	.00	.05	.03	.08	.04
Leadership/Authority	-.04	-.08	.00	.01	-.10	.01
Superiority/Arrogance	-.01	-.05	.06	-.00	.02	.03
Selfabsorption/Selfadmiration	.07	-.02	.03	-.02	.01	.04

\*p<.05    \*\*p<.01

Table 5

*Correlations of PPI Factors and Identification of Emotional Expressions Separated by Gender*

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. SP	-	.45**	.30	-.28**	.25**	.24**	-.24**	-.09	.04	.01	.04	-.01	.02	-.01
2. SI	.43**	-	-.09	-.43**	.22*	.15	-.22*	-.33**	-.06	.03	.00	-.04	.01	.02
3. IN	.17	.15	-	.21*	-.13	.53**	.33**	.22*	.00	.05	-.13	-.11	-.03	.04
4. BE	-.28**	-.33**	.26**	-	-.14	.01	.16	.45**	-.07	.00	.10	.07	-.08	.04
5. CH	.10	.28**	.03	-.20*	-	-.08	.00	-.05	-.15	.09	-.08	-.16	-.09	-.11
6. FL	.19*	.23*	.51**	-.01	-.02	-	.14	.13	.00	-.19*	-.10	-.04	-.04	-.04
7. CN	-.16	-.16	.06	.09	.09	.03	-	.18*	-.04	.10	-.04	-.12	.07	-.01
8. ME	-.12	-.33*	.09	.51**	-.14	-.20*	.22*	-	.02	-.19*	.05	.13	-.02	.09
9. Surprise	-.14	.03	.14	.10	-.10	.00	.07	.13	-	-.03	.08	.24**	.18*	.21*
10. Anger	-.13	-.20*	-.05	-.03	.02	.10	.17*	.07	.09	-	.09	.00	.25**	.27**
11. Sad	.04	.05	.01	.01	.08	.08	.08	-.13	.00	.16	-	.28**	.12	.193*
12. Disgust	-.02	-.06	.23**	.15	.11	.14	.03	.01	.07	.14	.26**	-	.20*	.27*
13. Fear	-.25**	-.06	.14	.10	.08	.03	.08	.07	.35**	.33**	.21*	.24**	-	.23**
14. Happy	-.04	.10	-.05	-.07	-.04	.01	.04	-.04	-.08	.06	.10	-.03	.06	-

*Note.* Intercorrelations for male participants ( $n = 129$ ) are presented above the diagonal, and intercorrelations for female participants ( $n = 132$ ) are presented below the diagonal. SP = Social Potency; SI = Stress Immunity; IN = Impulse Nonconformity; BE = Blame Externalization; CH = Coldheartedness; FL = Fearlessness; CN = Careless Nonconformity; ME = Machiavellian Egocentricity

\* $p < .05$  \*\* $p < .01$

Table 6

*Correlations of NPI Factors and Identification of Emotional Expressions Separated by Gender*

	1	2	3	4	5	6	7	8	9	10
1. EE	-	.43**	.37**	.41**	-.10	-.02	.02	-.09	.04	.02
2. LA	.31**	-	.57**	.37**	-.03	-.03	.10	.07	-.03	.07
3. SA	.18*	.55**	-	.46**	-.03	-.09	.02	-.02	.10	.04
4. SS	.11	.18*	.29*	-	.11	-.02	-.06	-.04	-.07	.03
5. Surprise	-.09	-.01	-.08	.04	-	.03	.08	.24**	.18*	.21*
6. Anger	-.05	-.12	-.07	-.01	.09	-	.09	.00	.25**	.27**
7. Sad	.05	-.10	.07	.12	.00	.16	-	.28**	.12	.19*
8. Disgust	.08	-.03	-.08	.03	.07	.14	.26**	-	.20*	.27**
9. Fear	.05	-.14	-.14	.09	.35*	.33**	.21*	.24**	-	.23**
10. Happy	.05	-.10	-.01	.06	-.08	.06	.10	-.03	.06	-

Note. Intercorrelations for male participants (n = 129) are presented above the diagonal, and intercorrelations for female participants (n = 132) are presented below the diagonal. EE = Exploiteness/Entitlement; LA = Leadership/Authority; SA = Superiority/Arrogance; SS = Self-absorption/Self-admiration

\*p<.05 \*\*p<.01

Table 7

*Correlations of PPI Facets and NPI Factors*

PPI Facets	NPI Factors			
	Exploiteness Entitlement	Leadership Authority	Superiority Arrogance	Self-Absorption Self-Admiration
Social Potency	.08	.50**	.51**	.31**
Stress Immunity	-.08	.07	.28**	.11
Impulse Nonconformity	.09	.04	.20**	.01
Blame Externalization	.29**	.09	-.02	.03
Coldheartedness	.10	-.06	.08	.03
Fearlessness	.00	.10	.27**	.05
Carefree Nonplanfulness	.04	-.26**	.00	-.17**
Machiavellian Egocentricity	.45**	.21**	.25**	.14*

\*p&lt;.05 \*\*p&lt;.01

## Appendix B. Psychopathic Personality Inventory – Short Form.

### PERSONALITY STYLES INVENTORY

This test measures differences in personality characteristics among people - that is, how people differ from each other in their personality styles. Beginning on this page, read each item carefully, and decide to what extent it is false or true as applied to you. Then mark your answer in the space provided to the left of each item using the scale provided below.

- 1) False    2) Mostly False    3) Mostly True    4) True

Even if you feel that an item is neither false nor true as applied to you, or if you are unsure about what response to make, try to make some response in every case. If you cannot make up your mind about the item, select the choice that is closest to your opinion about whether it is false or true as applied to you. Here's a sample item.

\_\_\_\_\_ I enjoy going to movies.

If it is true that you enjoy going to movies, place a 4 on the line to the left of the item, as shown below.

4 I enjoy going to movies.

If it is mostly false that you enjoy going to movies, place a 2 on the line to the left of the item, and so on. Try to be as honest as you can, and be sure to give your own opinion about whether each item is false or true as applied to you.

- 
- \_\_\_\_\_ (1) A lot of people in my life have tried to stab me in the back.
- \_\_\_\_\_ (2) I am a good conversationalist.
- \_\_\_\_\_ (3) I sometimes try to get others to "bend the rules" for me if I can't change them any other way.
- \_\_\_\_\_ (4) I might enjoy flying across the Atlantic in a hot-air balloon.
- \_\_\_\_\_ (5) I often become deeply attached to people I like.
- \_\_\_\_\_ (6) Many people think of my political beliefs as "radical."
- \_\_\_\_\_ (7) I'm the kind of person who gets "stressed out" pretty easily.
- \_\_\_\_\_ (8) I often push myself to my limits in my work.
- \_\_\_\_\_ (9) People whom I have trusted have often ended up "double-crossing" me.
- \_\_\_\_\_ (10) I'm hardly ever the "life of the party."

1) False    2) Mostly False    3) Mostly True    4) True

- \_\_\_\_ (11) In school or at work, I sometimes try to "stretch" the rules a little bit just to see how much I can get away with.
- \_\_\_\_ (12) I would find the job of movie stunt person exciting.
- \_\_\_\_ (13) Ending a friendship is (or would be) very painful for me.
- \_\_\_\_ (14) I sometimes like to "thumb my nose" at established traditions.
- \_\_\_\_ (15) I am easily flustered in pressured situations.
- \_\_\_\_ (16) I usually strive to be the best at whatever I do.
- \_\_\_\_ (17) Some people seem to have gone out of their way to make life difficult for me.
- \_\_\_\_ (18) I rarely find myself being the center of attention in social situations.
- \_\_\_\_ (19) I often tell people only the part of the truth they want to hear.
- \_\_\_\_ (20) Making a parachute jump would really frighten me.
- \_\_\_\_ (21) It bothers me greatly when I see someone crying.
- \_\_\_\_ (22) I've always considered myself to be something of a rebel.
- \_\_\_\_ (23) I am easily "rattled" at critical moments.
- \_\_\_\_ (24) I am very careful about my manners when other people are around.
- \_\_\_\_ (25) I've been the victim of a lot of bad luck in my life.
- \_\_\_\_ (26) I find it easy to go up to someone I've never met and introduce myself.
- \_\_\_\_ (27) I have to admit that I'm a bit of a materialist.
- \_\_\_\_ (28) It might be fun to belong to a group of "bikers" (motorcyclists) who travel around the country and raise some hell.
- \_\_\_\_ (29) I often hold on to old objects or letters just for their sentimental value.
- \_\_\_\_ (30) I pride myself on being offbeat and unconventional.

1) False    2) Mostly False    3) Mostly True    4) True

- 
- \_\_\_\_\_ (31) I tend to be "thin-skinned" and overly sensitive to criticism.
- \_\_\_\_\_ (32) I am an ambitious person.
- \_\_\_\_\_ (33) I'm sure that some people would be pleased to see me fail in life.
- \_\_\_\_\_ (34) I find it difficult to make small talk with people I do not know well.
- \_\_\_\_\_ (35) Frankly, I believe I am more important than most people.
- \_\_\_\_\_ (36) If I were a fire-fighter, I think I might actually enjoy the excitement of trying to rescue someone from the top floor of a burning building.
- \_\_\_\_\_ (37) I often feel very nostalgic when I think back to peaceful moments in my childhood.
- \_\_\_\_\_ (38) I wouldn't mind belonging to a group of people who "drift" from city to city, with no permanent home.
- \_\_\_\_\_ (39) I can remain calm in situations that would make many other people panic.
- \_\_\_\_\_ (40) I've quickly learned from my major mistakes in life.
- \_\_\_\_\_ (41) In the past, people who were supposed to be my "friends" ended up getting me in trouble.
- \_\_\_\_\_ (42) When I'm among a group of people, I rarely end up being the leader.
- \_\_\_\_\_ (43) I tell many "white lies."
- \_\_\_\_\_ (44) I bet that it would fun to pilot a small aircraft alone.
- \_\_\_\_\_ (45) I sometimes worry about whether I might have accidentally hurt someone's feelings.
- \_\_\_\_\_ (46) I would enjoy hitch-hiking my way across the United States with no prearranged plans.
- \_\_\_\_\_ (47) When I want to, I can usually put fears and worries out of my mind.
- \_\_\_\_\_ (48) I weigh the pros and cons of major decisions carefully before making them.

1) False    2) Mostly False    3) Mostly True    4) True

---

- \_\_\_\_\_ (49) People have often criticized me unjustly (unfairly).
- \_\_\_\_\_ (50) I become embarrassed more easily than most people.
- \_\_\_\_\_ (51) I quickly become very annoyed at people who do not give me what I want.
- \_\_\_\_\_ (52) I occasionally do something dangerous because someone has dared me to do it.
- \_\_\_\_\_ (53) I have had "crushes" on people that were so intense that they were painful.
- \_\_\_\_\_ (54) Fitting in and having things in common with other people my age has always been important to me.
- \_\_\_\_\_ (55) I tend to get crabby and irritable when I have too many things to do.
- \_\_\_\_\_ (56) I generally prefer to act first and think later.



### **Appendix C. Narcissistic Personality Inventory.**

Please read each pair of statements and then choose the one that is closer to your own feelings and beliefs. Indicate your answer by circling the letter "A" or "B" to the left of each item.

Please do not skip any items.

1.     A I have a natural talent for influencing people.  
       B I am not good at influencing people.
2.     A Modesty doesn't become me.  
       B I am essentially a modest person.
3.     A I would do almost anything on a dare.  
       B I tend to be a fairly cautious person.
4.     A When people compliment me I sometimes get embarrassed.  
       B I know that I am good because everybody keeps telling me so.
5.     A The thought of ruling the world frightens the hell out of me.  
       B If I ruled the world it would be a much better place.
6.     A I can usually talk my way out of anything.  
       B I try to accept the consequences of my behavior.
7.     A I prefer to blend in with the crowd.  
       B I like to be the center of attention.
8.     A I will be a success.  
       B I am not too concerned about success.
9.     A I am no better or no worse than most people.  
       B I think I am a special person.
10.    A I am not sure if I would make a good leader.  
       B I see myself as a good leader.
11.    A I am assertive.  
       B I wish I were more assertive.
12.    A I like having authority over people.  
       B I don't mind following orders.
13.    A I find it easy to manipulate people.  
       B I don't like it when I find myself manipulating people.

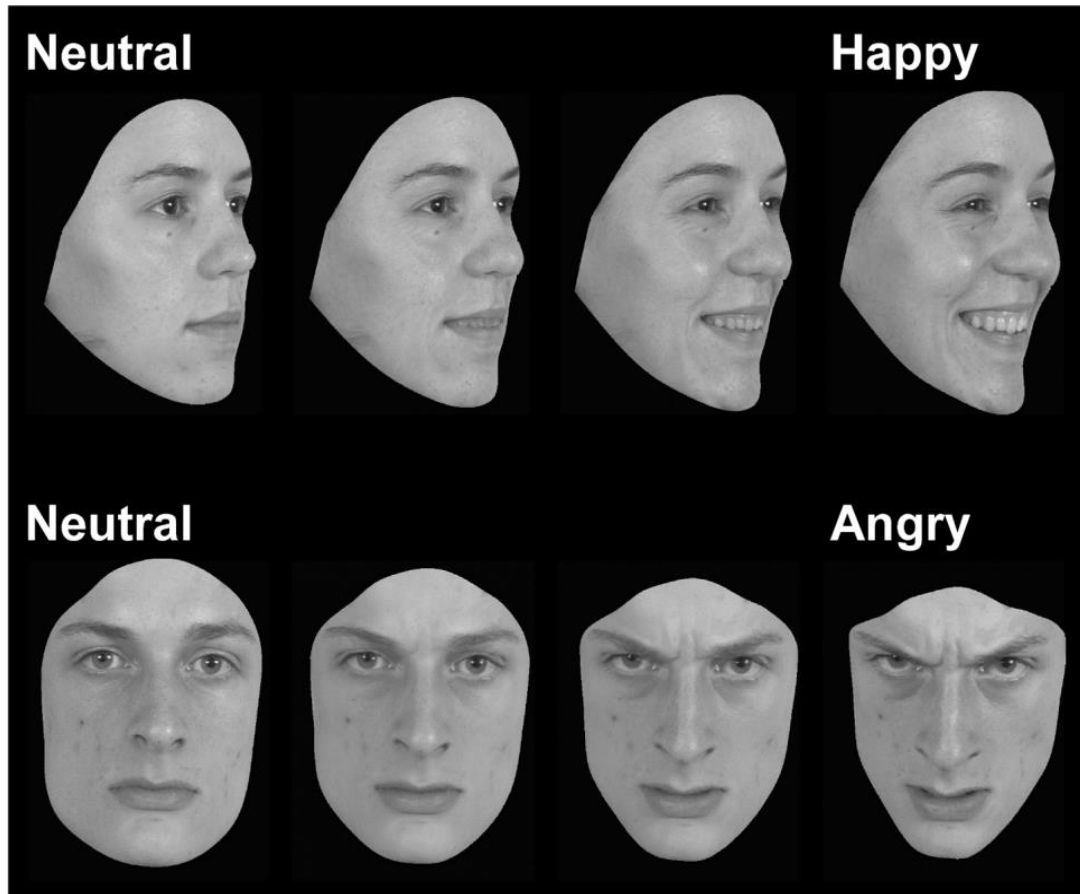
14. A I insist upon getting the respect that is due me.  
B I usually get the respect that I deserve.
15. A I don't particularly like to show off my body.  
B I like to display my body.
16. A I can read people like a book.  
B People are sometimes hard to understand.
17. A If I feel competent I am willing to take responsibility for making decisions.  
B I like to take responsibility for making decisions.
18. A I just want to be reasonably happy.  
B I want to amount to something in the eyes of the world.
19. A My body is nothing special.  
B I like to look at my body.
20. A I try not to be a show off.  
B I am apt to show off if I get the chance.
21. A I always know what I am doing.  
B Sometimes I am not sure of what I am doing.
22. A I sometimes depend on people to get things done.  
B I rarely depend on anyone else to get things done.
23. A Sometimes I tell good stories.  
B Everybody likes to hear my stories.
24. A I expect a great deal from other people.  
B I like to do things for other people.
25. A I will never be satisfied until I get all that I deserve.  
B I take my satisfactions as they come.
26. A Compliments embarrass me.  
B I like to be complimented.
27. A I have a strong will to power.  
B Power for its own sake doesn't interest me.
28. A I don't very much care about new fads and fashions.  
B I like to start new fads and fashions.

29. A I like to look at myself in the mirror.  
B I am not particularly interested in looking at myself in the mirror.
30. A I really like to be the center of attention.  
B It makes me uncomfortable to be the center of attention.
31. A I can live my life in any way I want to.  
B People can't always live their lives in terms of what they want.
32. A Being an authority doesn't mean that much to me.  
B People always seem to recognize my authority.
33. A I would prefer to be a leader.  
B It makes little difference to me whether I am a leader or not.
34. A I am going to be a great person.  
B I hope I am going to be successful.
35. A People sometimes believe what I tell them.  
B I can make anybody believe anything I want them to.
36. A I am a born leader.  
B Leadership is a quality that takes a long time to develop.
37. A I wish somebody would someday write my biography.  
B I don't like people to pry into my life for any reason.
38. A I get upset when people don't notice how I look when I go out in public.  
B I don't mind blending into the crowd when I go out in public.
39. A I am more capable than other people.  
B There is a lot that I can learn from other people.
40. A I am much like everybody else.  
B I am an extraordinary person.

**Appendix D. Figure1. Image of Facial Morphing Task.**

Each image began in a neutral pose (far left) and transformed on a continuum in 10 percent intervals until it was at 100 percent of the full expression (far right).

This occurred for happy, angry, disgusted, sad, surprised, and fearful expressions.



### Appendix E. Informed Consent Form.

I freely and voluntarily consent to participate in the research project entitled “The Relation between Personality Styles and Word Recognition” and understand that there is no penalty for non-participation. I also understand that my consent may be withdrawn at any time during the experimental session without prejudice or loss of credit. I will receive 2.0 hours of course credit for participating in the experiment which is being conducted by Elizabeth N. Lima (doctoral student in clinical psychology), under the direction of Dr. Bryan Loney (Assistant Professor in the Department of Psychology at FSU). The experiment will begin by completing a computer task measure in which I will quickly decide whether letter strings presented on a computer screen are real words or nonwords. I will then complete a number of rating scales measures of various personality and behavioral features such as extraversion and impulsivity. In order to protect my confidentiality to the extent allowed by law, I will be assigned a participant number that will serve as the only piece of identifying information on all research measures. The obtained information will be kept in a locked file cabinet in a research laboratory located on the Florida State University campus. A separate sheet of names with corresponding identification numbers will be kept in a locked cabinet in Elizabeth Lima’s office. My responses to research measures will be grouped together with scores of other participants making it impossible for anyone outside of the research team to determine how I responded. If you agree to participate in the study, please sign and date below. Thank you for the time that you have spent reviewing these materials whether or not you decide that you would like to participate. Please free feel to direct any questions, comments, and/or concerns to Elizabeth N. Lima or Dr. Loney by phone (850- 644-2300) or by email (lima@psy.fsu.edu). If you have any questions about your rights as a participant in this research, or if you feel that you have been placed at risk, you can contact the Chair of the Human Subjects Committee, Institutional Review Board, through the Office of the Vice President of Research, at (850) 644-8633.

_____	_____	_____
First Name	Middle	Last

_____	_____
Participant Signature	Date

It is helpful for our research if we can use SAT or ACT scores as a separate variable in our analyses. However, we need your permission to access these scores that the university keeps on file. Of course, this data will be coded with your subject numbers rather than your name, and will be kept confidential to the extent allowed by law. Data will be kept in a locked file cabinet and will be destroyed by May of 2011. Please provide your signature below if you permit the use of your scores in our analyses.

_____	_____
Participant Signature	Date